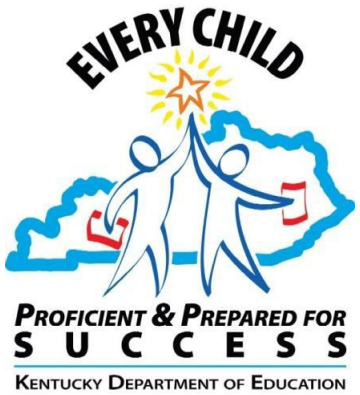
Kindergarten – Mathematics

Kentucky Core Academic Standards with Targets



Grade Level/ Course: Kindergarten	
Standard:	**K.CC.1 Count to 100 by ones and by tens.**
Domain:	**Counting and Cardinality**
Cluster:	**Know number names and the count sequence**
Type: __X____Knowledge _____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Count (verbal sequence only) to 100 by ones starting at 1. Count (verbal sequence only) to 100 by 10's starting at 10.			

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).**
Domain:	**Counting and Cardinality**
Cluster:	**Know number names and the count sequence.**
Type: __X____Knowledge _____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Count forward by 1's beginning with another number other than 1 (verbal sequence only).			

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.CC.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).**
Domain:	**Counting and Cardinality**
Cluster:	**Know number names and the count sequence.**
Type: __X____Knowledge _____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Write numerals 0 to 20 Write the number that represents a given number of objects from 0-20.			

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.CC.4abc Understand the relationship between numbers and quantities; connect counting to cardinality.** **a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.** **b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.** **c. Understand that each successive number name refers to a quantity that is one larger.**
Domain:	**Counting and Cardinality**
Cluster:	**Count to tell the number of objects.**
Type: _____Knowledge _____Reasoning ___X___Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Represent quantities using numbers and represent numbers using quantities	Match each object with one and only one number name and each number with one and only one object. Recognize the number of objects is the same regardless of their arrangement or the order in which they were counted. Realize that the last number name said tells the number of objects counted. Generalizes that each successive number name refers to a quantity that is one larger.	When counting objects, say the number names in order while matching each object with a number.	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Kindergarten	
Standard:	**K.CC.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.**
Domain:	**Counting and Cardinality**
Cluster:	**Count to tell the number of objects.**
Type: _____Knowledge _____Reasoning __X__Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Count up to 20 objects that have been arranged in a line, rectangular array, or circle Count as many as 10 items in a scattered configuration	Match each object with one and only one number name and each number with one and only one object Conclude that the last number of the counted sequence signifies the quantity of the counted collection.	Given a number from 1-20, count out that many objects.	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ HS Course: Kindergarten	
Standard with code:	**K.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]** ***[1] Include groups with up to ten objects.***
Domain:	**Counting and Cardinality**
Cluster:	**Compare numbers**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Describe greater than, less than, or equal to.	Determine whether a group of 10 or fewer objects is greater than, less than, or equal to another group of 10 or fewer objects.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ HS Course: Kindergarten	
Standard with code:	**K.CC.7 Compare two numbers between 1 and 10 presented as written numerals.**
Domain:	**Counting and Cardinality**
Cluster:	**Compare numbers.**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Know the quantity of each numeral.	Determine whether a written number is greater than, less than, or equal to another written number.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings[2], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.** **[2]Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the standards.)**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**
Type: _____Knowledge _____Reasoning __x____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Know adding is putting together parts to make the whole. Know subtracting is taking apart or taking away from the whole to find the other part. Know the symbols (+, -, =) and the words (plus, minus, equal) for adding and subtracting.	Analyze addition or subtraction problem to determine whether to 'put together' or 'take apart'. Model an addition/subtraction problem given a real-life story.	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations in multiple ways, *e.g., 2+3=5, 5=2+3, ||+|||=|||||, and vertically.* (Writing equations in kindergarten is not required but encouraged.)	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Kindergarten	
Standard with code:	**K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**
Type: _____Knowledge __X____ Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Add and subtract within 10 (Maximum sum and minuend is 10)	Solve addition and subtraction word problems within 10. Use objects/drawings to represent an addition and subtraction word problem.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Kindergarten	
Standard with code:	**K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**
Type: _____Knowledge ___X___ Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Solve addition number sentences within 10.	Decompose numbers less than or equal to 10 into pairs in more than one way. Use objects or drawings then record each composition by a drawing or writing an equation.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.OA.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**
Type: _____Knowledge __X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Know that two numbers can be added together to make ten	Using materials or representations, find the number that makes 10 when added to the given number for any number from 1 to 9, and record the answer using materials, representations, or equations.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Kindergarten	
Standard with code:	**K.OA.5 Fluently add and subtract within 5.**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**
Type: ___X___Knowledge _____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Fluently with speed and accuracy add and subtract within 5.			

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g. by using objects and drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.**
Domain:	**Number and Operations in Base Ten**
Cluster:	**Work with numbers 11-19 to gain foundations for place value.**
Type: _____Knowledge _____Reasoning ___X___Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Know that a (spoken) number (11-19) represents a quantity.	Understand that numbers 11-19 are composed of 10 ones and one, two, three, four, five, six, seven, eight, or nine ones. Represent compositions or decompositions by a drawing or equation.	Compose numbers 11-19 into ten ones and some further ones using objects and drawings. Decompose numbers 11-19 into ten ones and some further ones using objects and drawings.	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course: Kindergarten							
Standard with Code:	**K.MD.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.**						
Domain:	**Measurement and Data**						
Cluster:	**Describe and compare measureable attributes**						
Type: __X__Knowledge _____Reasoning _____Performance Skill _____Product							
Knowledge Targets		**Reasoning Targets**		**Performance Skill Targets**		**Product Targets**	
Know that objects have measurable attributes and know what they are called, such as length and weight. Describe an object by using attributes such as: width, height, length, weight, etc. Describe more than one measurable attribute of a single object.							
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course: Kindergarten	
Standard with Code:	**K.MD.2 Directly compare two objects with a measureable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.** ***For example, directly compare the heights of two children and describe one child as taller/shorter.***
Domain:	**Measurement and Data**
Cluster:	**Describe and compare measureable attributes**

Type: _____Knowledge ___X__Reasoning _____Performance Skill _____Product

Knowledge Targets	Reasoning Targets	Performance Skill Targets	Product Targets
Know the meaning of the following words: more/less, taller/shorter, etc. Know that two objects can be compared using a particular attribute.	Compare two objects and determine which has more and which has less of the measureable attribute to describe the difference.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course: Kindergarten	
Standard with Code:	**K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[3]** **[3]Limit category counts to be less than or equal to 10.**
Domain:	**Measurement and Data**
Cluster:	**Classify objects and count the number of objects in each category.**

Type: ____Knowledge _____Reasoning __X__Performance Skill _____Product

Knowledge Targets	Reasoning Targets	Performance Skill Targets	Product Targets
Recognize non-measurable attributes such as shape, color Recognize measurable attributes such as length, weight, height Know what classify means Know what sorting means Know that a category is the group that an object belongs to according to a particular, selected attribute Understand one to one correspondence with ten or less objects. Note: This target being included here depends on the ordering and grouping of content standards from Counting and Cardinality.	Classify objects into categories by particular attributes	Count objects in a given group. Note: This is addressed in another content standard. K.CC.5. It is important to integrate standards to assist students with making connections and building deeper understanding. Sort objects into categories then determine the order by number of objects in each category (limit category counts to be less than or equal to ten) For example, if m&m's are categorized by the attribute of color, then are "sorted" or ordered by the number in each group (there are more red than green, the blue group has fewer than the green.)	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to*.**
Domain:	**Geometry**
Cluster:	**Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Describe positions such as *above, below, beside, in front of, behind, and next to*.	Determine the relative position of the 2-dimensional or 3-dimensional shapes within the environment, using the appropriate positional words.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.G. 2 Correctly name shapes regardless of their orientations or overall size.**
Domain:	**Geometry**
Cluster:	**Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**
Type: ___X_Knowledge _____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Know that size does not affect the name of the shape. Know that orientation does not affect the name of the shape.			

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").**
Domain:	**Geometry**
Cluster:	**Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**
Type: ___X_Knowledge _____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Identify 2-dimensional shapes as lying in a plane and flat Identify 3-dimensional shapes as a solid			

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).**
Domain:	**Geometry**
Cluster:	**Analyze, compare, create, and compose shapes.**
Type: _____Knowledge __X__Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Identify and count number of sides, vertices/"corners", and other attributes of shapes	Describe similarities of various two- and three-dimensional shapes Describe differences of various two- and three-dimensional shapes Analyze and compare two-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, and other attributes (e.g. having sides of equal length). Analyze and compare three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g. number of sides and vertices/"corners") and other attributes (e.g. having sides of equal length).		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.**
Domain:	**Geometry**
Cluster:	**Analyze, compare, create, and compose shapes.**
Type: _____Knowledge _____Reasoning ___ ___Performance Skill ___X___Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Recognize and identify (square, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, spheres) Identify shapes in the real world	Analyze the attributes of real world objects to identify shapes.		Construct shapes from components (e.g., sticks and clay balls) Draw shapes

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Kindergarten	
Standard with code:	**K.G.6 Compose simple shapes to form larger shapes.** ***For example, "Can you join these two triangles with full sides touching to make a rectangle?"***
Domain:	**Geometry**
Cluster:	**Analyze, compare, create, and compose shapes.**
Type: _____Knowledge _____Reasoning ___X___Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Identify simple shapes (squares, triangles, rectangles, hexagons)	Analyze how to put simple shapes together to compose a new or larger shape.	Compose a new or larger shape using more than one simple shape.	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.